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$4 \, 25 \, b$

4          a second I/O waveguide carrying a first wavelength of the plurality of

5    wavelengths;

$4 \, 25 \, d$

6          a third I/O waveguide carrying a second wavelength of the plurality of

7    wavelengths; and

$4 \, 4 \, 8$

8          a first single-side-pass filter optically coupled to the first I/O waveguide,

9    wherein the first single-side-pass filter reflects a first wavelength between the first I/O

10   waveguide and the second I/O waveguide, and the first single-side-pass filter passes a

11   second wavelength between the first I/O waveguide and the third I/O waveguide.

1          3.    (Amended)    The optical device of claim 2 further comprising:

2          a second collimator assembly comprising a GRIN lens optically coupled to

3    the first single-side-pass filter and a waveguide, wherein the first single-side-pass filter

4    passes the second wavelength between the first I/O waveguide and the third I/O

5    waveguide through the waveguide of the second collimator assembly.

1          4.    (Amended)    The optical device of claim 3 further comprising:

2          a third collimator assembly comprising a GRIN lens, a first waveguide

3    optically coupled to the second waveguide of the first collimator assembly, and a second

4    waveguide;

5          a fourth collimator assembly comprising a GRIN lens and a waveguide;

6    and

7          a second single-side-pass filter optically coupled to the GRIN lens of the

8    third collimator assembly and the GRIN lens of the fourth collimator assembly, wherein

9    the second single-side-pass filter reflects a third wavelength of the plurality of

10   wavelengths between the first waveguide of the third collimator assembly and the second

11   waveguide of the third collimator assembly, and passes the first wavelength of the

12   plurality of wavelengths between the first waveguide of the third collimator assembly and

13   the waveguide of the fourth collimator assembly.

1          5.    (Amended)    The optical device of claim 4 further comprising:

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2    a fifth collimator assembly comprising a GRIN lens, a first waveguide

3    optically coupled to the first waveguide of the second collimator assembly, and a second

4    waveguide;

5    a sixth collimator assembly comprising a GRIN lens and a waveguide; and

6    a third single-side-pass filter optically coupled to the GRIN lens of the

7    fifth collimator assembly and the GRIN lens of the sixth collimator assembly, wherein

8    the third single-side-pass filter reflects a fourth frequency of the plurality of optical

9    signals between the first waveguide of the fifth collimator assembly and the second

10   waveguide of the fifth collimator assembly, and passes the second wavelength between

11   the first waveguide of the fifth collimator assembly and the waveguide of the sixth

12   collimator assembly.


1    6.    (Amended)    The optical device of claim 3 wherein the first

2    collimator assembly, the second collimator assembly, and the first single-side-pass filter

3    are an integrated assembly.


1    13.    (Amended)    The optical device of claim 12 further comprising:

2    a fifth I/O waveguide carrying a fourth wavelength of the plurality of

3    wavelengths; and

4    a third single-side-pass filter, wherein the third single-side-pass filter

5    reflects the fourth wavelength between the first I/O waveguide and the fifth I/O

6    waveguide and passes the second wavelength between the first I/O waveguide and the

7    third I/O waveguide.


1    20.    (Amended)    The optical device of claim 19 further comprising::

2    a third collimating lens comprising:

3    a dual capillary GRIN lens with first and second waveguide terminals;

4    an optical filter coupled to the dual capillary GRIN lens; and

5    a single capillary GRIN lens coupled to the optical filter,

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cont

6          wherein the first waveguide terminal of the third collimating lens is

7     optically coupled to the single capillary GRIN lens of the first collimating lens.